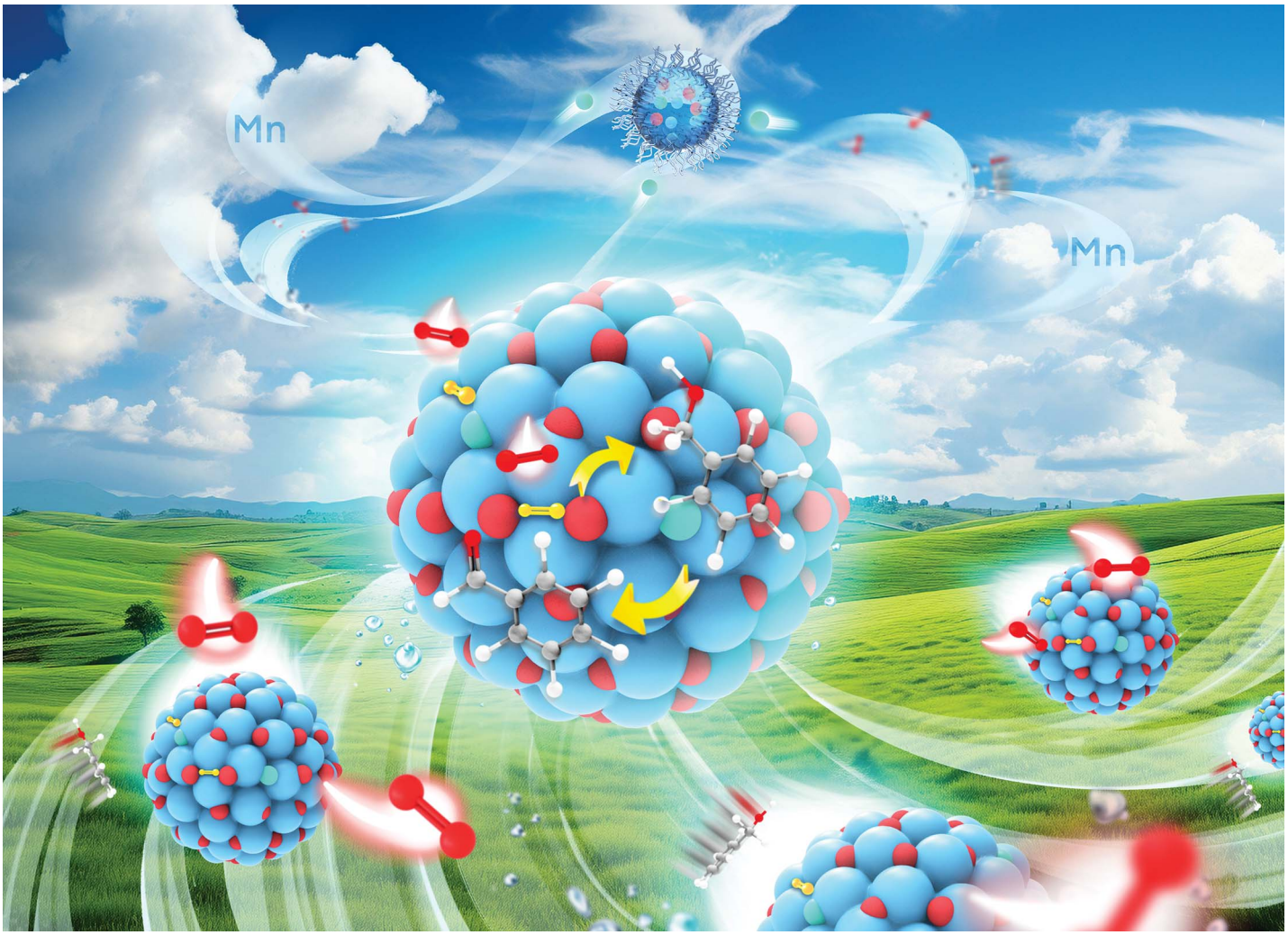

Showcasing research from Dr Ke's laboratory, College of Chemistry and Chemical Engineering, Anhui University of Technology, Maanshan, Anhui, P. R. China.

Spontaneous generation of singlet oxygen on microemulsion-derived manganese oxides with rich oxygen vacancies for efficient aerobic oxidation

N_{55}-MnO_2 nanocatalysts with oxygen vacancy concentrations as high as 51.1% can be obtained by strategically incorporating defect engineering and interstitial N using compartmentalized-microemulsion crystallization followed by post-calcination. This feature allows the nanocatalyst to expose a substantial number of O_v and interstitial N sites on the surface of N_{55}-MnO_2, facilitating effective chemisorption and activation of O_2. As a result, the N_{55}-MnO_2 nanocatalyst enables room-temperature aerobic oxidation of alcohols with a yield surpassing 99%, representing a 6.7-fold activity enhancement compared to ε-MnO_2 without N-doping.

As featured in:

See Chao Wan, Qingping Ke, Yunqing Kang, Yusuke Yamauchi *et al.*, *Chem. Sci.*, 2023, **14**, 13402.

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